PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference JAB1701-PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP 03/50292	International filing date *(day/month/year)* 08.07.2003	Priority date *(day/month/year)* 15.07.2002
International Patent Classification (IPC) or both national classification and IPC C07D487/04		
Applicant JANSSEN PHARMACEUTICA N.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☒ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
24.12.2003	05.11.2004
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Grassi, D Telephone No. +49 89 2399-8499

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP 03/50292

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-63 as originally filed

Claims, Numbers

1-10 filed with telefax on 03.09.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

see separate sheet

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees, the applicant has:

   ☐ restricted the claims.

   ☐ paid additional fees.

   ☐ paid additional fees under protest.

   ☒ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

   ☐ complied with.

   ☒ not complied with for the following reasons:

   see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

   ☐ all parts.

   ☒ the parts relating to claims Nos. 1-10(part) .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-10
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-10
Industrial applicability (IA)	Yes:	Claims	1-10
	No:	Claims	

2. Citations and explanations

   see separate sheet

Re Item I

The original claim 1 did not encompass residues R^6 and R^7 being C_{1-4} alkylcarbonyl or C_{1-4} alkylsulfonyl.

However, in view of the fact that on page 6, lines 30/31 the residues R^6 and R^7 can have the meaning C_{1-4} alkylsulfonyl, that on page 14, lines 35-37 the residues R^6 and R^7 can have the meaning C_{1-4}alkylsulfonyl or C_{1-4} alkylcarbonyl, considering the example 135 and claim 6, the proviso added to claim 1 appears allowable.

Re Item IV

The International Examination Authority found multiple (groups of) inventions in this international application.

The document JP 09 255681 (D1) discloses antitumor compounds. The present compounds differ from the compounds of D1

- in that the residue R^5 is $-N(R^6)SO_2$alkyl or $-N(R^6)$COalkyl instead of $-N(Me)_2$ or NH(lower alkyl) (cf. pages 5 and 6 and Derwent abstract of D1) or
- in that the residue R^5 is substituted C_{1-4} alkoxy instead of unsubstituted C_{1-4} alkoxy (cf. page 5 and Derwent abstract of D1).

The technical problem underlying the present application is seen in the provision of alternative antitumor compounds.

In view of the disclosure of D1 the alternative solutions encompassed by claim 1 do not share a common special technical feature as required by Rule 13.2 PCT.

The amendments carried out by the applicant give rise to a 'new' grouping of the different inventions as follows:

1. Compounds according to claim 1 in which R^5 is NR^6R^7
2. Compounds according to claim 1 in which R^5 is -O-(mono or di(C_{1-4} alkyl)aminosulfonyl)
3. Compounds according to claim 1 in which R^5 is Het^2
4. Compounds according to claim 1 in which R^5 is substituted C_{1-4} alkyl
5. Compounds according to claim 1 in which R^5 is substituted C_{1-4} alkyloxy.

The required additional search fee has been paid by the applicant. However, no additional examination fee has been paid. Therefore, the written opinion was restricted to the first invention as identified in the invitation to restrict or pay additional examination fees.

Nevertheless, this report covers the subject-matter of the first invention of the amended application (cf. above) which only partly overlaps with the first invention covered by the preceding written opinion.

Re Item V

The following considerations only apply to compounds according to claim 1 in which R^5 is NR^6R^7 (cf. above).

1) The subject-matter of present claims is new (Article 33(2) PCT).

The document JP 09 255681 (D1) discloses antitumor compounds. The present compounds differ from the compounds of D1 in that the residue R^5 is $-N(R^6)SO_2$ alkyl or $-N(R^6)$COalkyl (cf. proviso in claim 1) instead of $-N(Me)_2$ or NH(lower alkyl) (cf. pages 5 and 6 and Derwent abstract of D1).

2) The subject-matter of claims does not involve an inventive step (Article 33(3) PCT).

D1 represents the closest prior art (cf. above).
In view of the close structural relationship of the present compounds with the compounds of D1, the technical problem underlying the present application is seen in the provision of antitumor compounds showing unexpected effects or properties in relation to the compounds of D1.

However, no such effects or properties are indicated in the application. Hence, no inventive step is present.